

Moh Dani 2026. Pengembangan *Game* Edukasi *Android* Berbasis *Augmented Reality* Untuk Pembelajaran Materi Jaringan Komputer Siswa SMK Kelas X. Skripsi, Program Studi Pendidikan Informatika, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Trunojoyo Madura. Pembimbing Ariesta Kartika Sari, S.Si., M.Pd.

ABSTRAK

Penelitian ini dilatarbelakangi oleh rendahnya motivasi dan pemahaman siswa pada materi Jaringan Komputer serta belum optimalnya penggunaan media pembelajaran interaktif di SMK Al-Baisuny. Penelitian ini bertujuan mengembangkan *game* edukasi berbasis *Android* yang dilengkapi teknologi *Augmented Reality* (AR) dan algoritma *Fisher-Yates Shuffle*, serta mengetahui kelayakan, motivasi belajar, dan pemahaman siswa setelah menggunakan media yang dikembangkan. Penelitian ini menggunakan metode *Research and Development* (R&D) dengan model ADDIE yang meliputi tahap *Analysis*, *Design*, *Development*, *Implementation*, dan *Evaluation*. Teknik pengumpulan data menggunakan lembar validasi ahli, angket respon siswa, angket motivasi belajar, serta tes *pretest* dan *posttest*. Hasil penelitian menunjukkan bahwa media yang dikembangkan memperoleh persentase validasi ahli materi sebesar 96%, ahli kisi-kisi soal sebesar 96%, dan ahli media sebesar 98% dengan rata-rata keseluruhan 96,67% yang termasuk kategori sangat valid. Hasil uji coba menunjukkan respon siswa sebesar 86% pada uji coba perorangan, 92% pada kelompok kecil, dan 90% pada kelompok besar. Motivasi belajar siswa memperoleh persentase sebesar 88%, 84%, dan 88% dengan kategori tinggi. Hasil pemahaman siswa berdasarkan nilai N-Gain sebesar 92%, 75%, dan 59% menunjukkan bahwa media yang dikembangkan mampu meningkatkan pemahaman siswa. Berdasarkan hasil tersebut, *game* edukasi berbasis *Android* dengan teknologi *Augmented Reality* dan algoritma *Fisher-Yates Shuffle* dinyatakan layak digunakan serta dapat digunakan sebagai alternatif media pembelajaran pada materi Jaringan Komputer.

Kata kunci: *Game* Edukasi, *Augmented Reality*, *Fisher-Yates Shuffle*, Motivasi Belajar, Pemahaman Siswa.

ABSTRACT

This research was motivated by the low level of students' motivation and understanding of Computer Network materials, as well as the limited use of interactive learning media at SMK Al-Baisuny. The objectives of this study were to develop an Android-based educational game equipped with Augmented Reality (AR) technology and the Fisher-Yates Shuffle algorithm, and to determine its feasibility, students' learning motivation, and students' understanding after using the developed media. This study employed the Research and Development (R&D) method using the ADDIE model, which consists of Analysis, Design, Development, Implementation, and Evaluation stages. Data were collected through expert validation sheets, student response questionnaires, learning motivation questionnaires, and pre-test and post-test instruments. The results showed that the developed media obtained validation scores of 96% from material experts, 96% from test blueprint experts, and 98% from media experts, with an overall average of 96.67%, categorized as highly valid. The trial results indicated student response percentages of 86% in the individual trial, 92% in the small-group trial, and 90%

in the large-group trial. Students' learning motivation percentages were 88%, 84%, and 88%, respectively, which were categorized as high. Furthermore, students' understanding based on N-Gain scores reached 92%, 75%, and 59%, indicating that the developed media was able to improve students' understanding. Based on these findings, the Android-based educational game incorporating Augmented Reality technology and the Fisher-Yates Shuffle algorithm is considered feasible for use and can serve as an alternative learning media for Computer Network subjects.

Keywords: *Educational Game, Augmented Reality, Fisher-Yates Shuffle, Learning Motivation, Students' Understanding.*